ABSTRACT

A study on mechanisms used by subsistence farmers to cope with climate variability and change was conducted in the Taita Hills, Kenya from January 2014 to March 2015. Household surveys together with key informant interviews were used to collect data to assess farmers’ use of crop diversification as a strategy to cope with climate variability and change. Further there was an assessment of past crop records in relation to weather and climate data in the area. The study then assessed the potential of improved sweet potato varieties to shield farmers from crop failures. One hundred and ninety one (191/393) respondents cited drought as the event that has affected them in the past. Various forms of crop diversification have been employed by farmers; however, improved sweet potato variety did not feature much as vines are obtained locally. The most preferred being drought resistant crops (52%), the other diversification forms adopted by the community included crop variety (18%), fodder (17%), horticulture (9%), cash crops (1%). Demographic factors strongly influenced choice of crop for crop diversification as a strategy. They include age, gender, marital status, and occupation, duration of residence and source of income of the respondents. Analysis of past crop performance in relation to past weather data revealed a significant positive correlation between rainfall amount and maize performance $P \leq 0.01$. There was no significant correlation between yields of other crops and rainfall and temperature. This study has shown that the impacts of climate variability are felt by the farmers and that their adaptation strategies are guided by their perception of the same. An assessment of improved sweet potato varieties revealed varied performance among the five varieties as well as in three selected sites. Bungoma variety outperformed the other varieties with a total and marketable yield of 1313.2Kg/ha and 895.0 Kg/ha respectively. The Ejumla variety recorded the highest attack on yield by insect pests which affected significantly its total yield and marketable yield. The site in Josa recorded the highest total yield and marketable yield despite it recording the highest pest attacked yield (0.16 g/ha) whereas Mwatate site recorded the least total yield and marketable yield. Crop diversification was encouraged and use of improved sweet potato varieties recommended.

Keywords: Climate variability and change, subsistence farmers, crop diversification, Sweet potato varieties, Taita Hills, Kenya